

IN THE CLAIMS:

1. **(Original)** A terahertz spectroscopy system comprising:
  - a terahertz source for illuminating, in use, a sample with a pulse of radiation in the terahertz frequency range; .
  - excitation means for providing excitation energy in the form of a beam on a selected portion of the illuminated sample prior to or during illumination of the sample by the terahertz source;
  - a terahertz sensor for receiving energy from the illuminated sample; and
  - processing means for receiving signals from the terahertz sensor and processing them to provide an output representative of the terahertz spectrum Preceived by the sensor.
2. **(Original)** The system of claim 1, wherein the excitation means is a laser.
3. **(Original)** The system of claim 2, wherein the laser also provides the excitation for the terahertz source.
4. **(Original)** The system of claim 1, wherein the excitation means provides excitation energy in the form of a neutron beam.
5. **(Original)** The system of claim 1, wherein the excitation means provides an acoustic wave beam
6. **(Currently amended)** The system of ~~claims 1 to 5~~ claim 1, wherein optical components are provided in the system in order to focus the terahertz radiation onto the sample and onto the terahertz sensor.

7. **(Currently amended)** The system of ~~any preceding claim~~  
claim 1, wherein means are provided for controlling the direction of the  
exciting energy to scan it across the surface of the sample in use.

8. **(Original)** The system of claim 7, wherein means are  
provided to control the illumination of the terahertz radiation in order to  
enable scanning of this across the sample.

9. **(Currently amended)** The system of ~~any preceding claim~~  
claim 1, wherein there is provided means for ~~focussing~~ focusing or  
~~localising~~ localizing the excitation energy in order to control its spatial  
resolution and hence control the overall spatial resolution of the system.

10. **(Currently amended)** The system of ~~any preceding claim~~  
claim 1, wherein the terahertz sensor is an electro optic sensor.

11. **(Original)** The system of claim 10, wherein the sensor is an  
EOS crystal.

12. **(Currently amended)** The system of ~~any of claims 1 to 7~~  
claim 1, wherein the terahertz sensor is a photoconductive sensor.

13. **(Currently amended)** The system of ~~any preceding claim~~  
claim 1, wherein the processing means is arranged to control the  
Terahertz source and excitation means in order to control illumination of  
the sample.

14. **(Original)** The system of claim 13, wherein the processing  
means is arranged to control illumination of the sample such that a  
reference measurement is taken without excitation energy on the sample  
and is also arranged to provide a differential signal based upon a

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comparison between the reference measurement and other  
measurements.